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ABSTRACT

This report examines support for education Knowledge Production and Utilization (KPU) using data provided by the National Academy of Sciences (NAS) Study Project on Social Research and Development. The scope of education KPU is discussed in terms of social policy areas relevant to education and activities relevant to KPU. The conceptual framework developed is used to formulate decision rules for determining whether or not a particular program should be included as education KPU. These decision rules are then applied to the NAS data base, and education KPU obligations are presented by social policy area for three fiscal years, by agency for three fiscal years, by KPU function for three fiscal years, and by agency and function for FY 1975. This analysis of Federal funding for education KPU indicates the following: (1) Between fiscal years 1975 and 1977 funding for education KPU is expected to increase by 6%. However, as this figure is less than the rate of inflation, support in real terms will decrease. (2) The majority of education KPU funds is spent on problem-solving activities followed by utilization and knowledge production. (3) The three functions accounting for the majority of educational KPU funds are policy formulation demonstrations, development of materials, and implementation demonstrations. (4) Analysis of KPU function by agency indicates that agencies do in fact emphasize different KPU activities. (5) The Office of Education emphasizes policy implementation demonstrations, miscellaneous demonstrations, and policy formulation demonstrations. (6) NIE emphasizes policy formulation demonstrations and the development of materials. (7) Agencies outside of HEW primarily support development of materials projects. (MM)

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R&D SYSTEM STUDIES

TECHNICAL REPORT #2

FEDERAL FUNDING FOR EDUCATION

KNOWLEDGE PRODUCTION AND UTILIZATION:

KPU FUNCTION, BY AGENCY

U.S. DEPARTMENT OF HEALTH
EDUCATION & WELFARE
NATIONAL INSTITUTE OF
EDUCATION

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Washington, D.C. 20208

HIGHLIGHTS

- Support for education KPU will decrease in real terms between fiscal years 1975 and 1977 as the expected increase of 6% is less than the rate of inflation.
- The majority of education KPU funds (60%) is spent on problem solving activities followed by utilization (29%) and knowledge production (11%).
- The three functions accounting for the majority of education KPU funds are: policy formulation demonstrations, development of materials and policy implementation demonstrations.
- The various agencies supporting educational KPU emphasize different KPU activities.
- The Office of Education emphasizes policy implementation demonstrations, miscellaneous demonstrations and policy formulation demonstrations.
- NIE emphasizes policy formulation demonstrations and development of materials.
- Agencies outside of HEW primarily support development of material projects.

Technical Reports are designed to provide basic descriptive data on major aspects of the R&D system for education such as funding, organizations, and personnel. Findings are presented with a minimum of interpretation, but with enough conceptual and methodological detail for the reader to make judgments concerning the validity of the data. Interpretative reports and policy analyses will be issued separately, relying on the technical reports to provide methodological detail.

Federal Funding for Education Knowledge Production and Utilization: KPU function, by agency

March, 1977

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INTRODUCTION

This report, the second in a series on Federal funding, [1] examines support for education Knowledge Production and Utilization using data provided by the National Academy of Sciences (NAS) Study Project on Social Research and Development. The report discusses the scope of education KPU in terms of social policy areas relevant to education and activities relevant to KPU. The conceptual framework developed is used to formulate decision rules for determining whether or not a particular program should be included as education KPU. These decision rules are then applied to the NAS data base, and education KPU obligations are presented:

- o by social policy area for three fiscal years
- o by agency for three fiscal years
- o by KPU function for three fiscal years
- o by agency and function for FY 1975.

It should be emphasized that although our starting point is the data collected and categorized by the NAS study, we have superimposed our own framework both in terms of what programs to include and how the data are grouped and interpreted. The findings reported here therefore differ from those to be reported by the Academy in their own report, and neither the Academy nor the National Science Foundation, which sponsored the collection of the data, is responsible for our interpretations.

Traditionally the analysis of Federal funds for research and development has been based on statistics compiled by either the National Science Foundation's Division of Science Resources Studies or the Office of Management and Budget. However, the NSF Science Resources series uses a narrow definition of R&D which excludes dissemination and other functions of great interest of NIE; and the OMB analysis does not provide separate data for the several R&D functions.[2] In both cases the validity and reliability of the data are weakened because agencies supplying data choose to interpret the definitions and procedures in varying ways.

1/ The first report in this series (Nelson, Sowers and Mason, 1977) developed a composite estimate of Federal funding for education KPU using three data bases in addition to the NAS data base.

2/ See Nelson, Sowers, and Mason, 1977 for a more detailed discussion of these data bases.

The NAS study was designed to overcome at least some of these difficulties. It has the following features:

- o It permits some disaggregation to sub-agency units or programs;
- o It permits flexibility in decisions concerning which programs are to be included for different analytic purposes;
- o It employs a detailed multi-level taxonomy of research, development, demonstration, evaluation, dissemination, and related functions covering the complete spectrum of knowledge production and utilization and provides careful definitions of terms;
- o Data were collected and coded by a team trained in the meaning and application of the definitions;
- o Backup material on each of the programs was available, making it possible to recode on the basis of additional criteria.

Certain limitations to the study generally and of this report in particular should be noted:

- o Data were collected on only four variables: agency/program, social policy area, R&D function, and fiscal year (1975-77). Programs cannot be further differentiated by type of educational problem, strategy, target group, etc.[3/]
- o Even though the data can be disaggregated to some extent, many programs that are large and heterogeneous had to be coded into one category; the analysis cannot be refined to the same level that could be done with project level data.

In addition, data for the three fiscal years have different meanings. Data for FY 1975 represent actions already taken to obligate funds. FY 1976 data were collected in spring 1976 and represent a mixture of actions already taken and those estimated for the balance of the fiscal year based on known appropriations. FY 1977 data are projections based on program plans and agency budget requests.

3/ A report of this type based on project level data is in preparation. It is based on that segment of Federally funded education KPU focused on early childhood and adolescence.

CONCEPTUAL ISSUES

What Social Policy Areas are Relevant to Education?

The overall NAS project is concerned with the study of social research, defined as research aimed at understanding and alleviating social problems. Since many types of social research are relevant to more than one social problem, the partitioning of the social domain into separate "policy areas" is difficult. In order to deal with this problem the study designers developed a classification of policy areas that permits some flexibility.

NAS categorized fifteen mutually exclusive policy areas, of which education is one (See Appendix 1 for a full listing of these areas). No formal definition of the education policy area is provided; rather it is defined by listing the sub-areas to be included and excluded as follows:

Includes: Pre-School Education (Day Care, etc.)
Elementary
Secondary
Vocational Education
Higher Education
Handicapped
Occupational
Basic Research in Education
Education Service Delivery (i.e. Educational Finance, School Administration)
Adult Education

Excludes: Health Education
Science Education

Clearly the education policy area contains the core programs we wish to identify. But are there programs with primary goals in other social research areas that have secondary education goals or are otherwise relevant to education?

There seem to be several possibilities. Two of the other policy areas have sub-categories concerned with education. The health policy area contains a health education component, and the science and technology area contains a science education element. While the primary objectives of these two programs are health and science respectively, their education

components traditionally have been considered part of the education R&D effort.

Another social policy area, cultural affairs, focuses on the arts and humanities. Many programs in this area probably are concerned with the improvement of school programs in the arts and humanities.4/

The employment, manpower, and training area presents special considerations. In one sense it is entirely concerned with education, but with an area which government policy analysts have kept separate from the "core" education activities centered on the formal school system. All related Department of Defence (DOD) activities are coded here. Nonetheless much of the research in this area (e.g. on programmed instruction) is indistinguishable from that going under the heading of education. Since the amount of money spent for these programs is sizeable, decisions on whether to include them as education research will have a large impact on the totals.

In summary, we have identified four social policy areas in addition to education in which to look for programs related to education:

- o Science and Technology (Science Education)
- o Health (Health Education)
- o Cultural Affairs
- o Employment. Manpower, and Training

After introducing the issue of the R&D functions to be included, we shall present the criteria used to make decisions about individual programs.

What Activities are Relevant to Knowledge Production and Utilization?

Recently, there has been a growing realization that the term "R&D is inadequate to denote either the scope or the variety of functions of interest. In terms of scope it has become increasingly clear that all or part of the activities that have gone under the headings of demonstrations, dissemination, evaluation, and statistics are of equal importance in a comprehensive program of planned educational change. To encompass this broader domain the NAS study refers to "Knowledge Production and Application (KPA)." Other more or less equivalent terms in current use

4/ We understand that the NAS study directors have in fact merged cultural affairs with education in their own analysis.

are "Knowledge Production and Utilization" (KPU) (NIE, 1976), "Research, Development, Dissemination, and Evaluation" (RDD&E) (Schalock and Sell, 1972), and "Research, Development, and Innovation" (RD&I) Radnor et al, 1976). Throughout this paper we use knowledge production and utilization (KPU) to denote this domain and classify activities within it by KPU function.

KPU functions are concerned with different aspects of the attempt to generate, transfer and use general knowledge and knowledge products for the improvement of education. Churchill (1974) has suggested four criteria:

- o Generalizability of activity results
- o Conscious use of a particular methodology of work
- o Durability of results
- o Novelty of an activity or its results.

The boundary at the utilization end is particularly hard to define, since in the final analysis each classroom is unique. An attempt by an individual teacher to introduce some element of novelty in his or her class is beyond our purview unless there is some transaction with some more generalizable body of knowledge, information, or products. This could take either of two directions. Either the teacher might attempt to draw upon some resource base, or might attempt some systematic evaluation and transfer of some novel idea of his/her own.

Given this broad scope, it becomes important to differentiate carefully the variety of functions encompassed. The NAS study has made a considerable contribution by developing a two-level classification of functions. Their scheme includes seven functions and 24 sub-functions. The seven functions which guided the original data collection are: research, demonstrations, development of materials, dissemination activities, routine Federal statistical programs, evaluation activities, and training and fellowships. (See Appendix 2 for a list of these functions and sub-functions). NAS expands on other KPU conceptions by including statistical programs such as those conducted by the National Center for Educational Statistics. The differentiation of sub-functions is a helpful contribution in that it allows greater selectivity and flexibility for analytical purposes. For example, particular sub-functions can be excluded from analysis or combined to provide new analytic categories. As will be shown below, NIE has both excluded certain sub-functions and recombined others.

NIE Perspective on the Education KPU Domain

In examining programs that have primary goals in social policy areas other than education, it is necessary to employ additional criteria in order to determine whether the program has a secondary goal in education or is otherwise relevant to education. These criteria must have reference to both the nature of education and the type of KPU function.

From some points of view the idea of basic research relevant to education is a contradiction in terms, since basic research is defined without reference to fields of application. However, building a base of fundamental knowledge is obviously crucial to the improvement of education. There are many fields of knowledge of potential importance to education, but it seems impractical to try to include them all. We have followed the lead of the Social Research Group and used as the criterion all research on cognitive or socio-emotional development (Harrell, Wirtz, and Hurt, 1977). Although this criterion may omit some relevant areas, a strong prima facia case can be made for its use as a starting point.

For other functions the key question is, what is education? Without attempting a full discussion of this complex topic, we have chosen to equate education for present purposes with the formal school system and its extensions (e.g. pre-school programs and post-secondary education).

The scope of KPU functions has been defined broadly to include research, statistical activities, evaluation, development of materials, demonstration, and dissemination. The full range of functions and subfunctions on which data were originally collected has been narrowed in the following ways:

- Data on "training and fellowships" have been excluded. While eventually it would be desirable to include obligations for these and other support activities, the nature of the present data argue against taking that step. Data on training and fellowships seem to include funds for training all kinds of personnel and not just KPU personnel.

- The category "program or administrative data" was dropped because it was considered outside the bounds of disciplined inquiry.

- The residual category "miscellaneous demonstrations" was retained on a selective basis. Information on individual programs was examined and the data retained if there was evidence that the program was designed to produce transferable products of use to education and/or there was evidence of systematic evaluation.

A new typology of functions and sub-functions is discussed in a later section.

Applying these criteria to the social policy areas listed previously, the following adjustments were made:

- o Education policy area: These core activities are found mostly within the Education Division of HEW, and there is little question of their relevance to education. However, a few programs (totalling $8.5 million) within the Office of Education were excluded on the grounds they were beyond the scope of KPU activities. The largest such program ($7.8 million) was for television program development under Emergency School Aid. Because these films were neither school based nor school oriented, they were excluded. In addition, NAS also classified as education a major program in the Department of Agriculture, with obligations of $55 million in FY 1975. Examination of program material revealed that these funds were for non-school based activities of the 4-H Clubs, and this program was therefore excluded. Finally $.1 million appropriated by the National Fire Prevention and Control Administration for programs of fire prevention was excluded because it did not involve schools or school-aged children.

- o Science education: This policy area was retained in its entirety.

- o Health education: One program of assistance to the National Center for Training Fire-Fighters ($.1 million) was excluded.

- o Cultural affairs: A few programs were excluded on the basis of being non-school related. (In FY 1975 $20.7 out of $20.8 million was retained).

- o Employment, manpower and training: Programs accounting for $21.4 million of the $42.1 million obligated by the Department of Defense (DOD) in this social policy area were deemed to be relevant to education. Most of these funds were obligated for research, development, and evaluation of computer assisted instruction (an area that is directly relevant to schools). Other educationally relevant DOD programs involve basic research on learning and cognitive processes and vocational and IQ test development.

FUNDING LEVELS

Total Education KPU Funding

A comparison of education KPU support for each of the policy areas for three fiscal years are presented in Table 1. These data, as are all

Table 1. Federal obligations for education knowledge production and utilization for each policy area, fiscal years 1975, 1976 and 1977 (dollars in thousands).

Policy area	FY 1975 Actual	FY 1976 Est.	FY 1977 proj.
Total	452,225	472,229	480,272
Education	347,787	386,048	389,483
Science education	39,875	16,712	16,400
Health education	22,414	25,096	26,296
Cultural affairs	20,698	21,792	19,713
Employment, manpower and training	21,451	22,581	28,380

SOURCE: National Academy of Sciences, Study Project on Social Research and Development, as modified by the National Institute of Education.

data presented in this report, are based on NIE's modification of the NAS data base. The NAS data do account for 88% of the total education KPU funding presented by Nelson et al (1977). The educational programs of the following agencies could not be identified separately in the NAS data and are therefore excluded in this paper's analysis: 5/

- o Alcohol, Drug Abuse, and Mental Health Administration (ADAMHA).
- o National Institute of Child Health and Human Development (NICHD).
- o National Institute of Neurological and Communicative disorders and stroke (NINCDS).
- o Office of Child Development (OCD).

Between fiscal years 1975 and 1977 funding for education KPU in total is expected to increase by 6%. This increase is due to the 12% increase in the education policy area and the 32% increase in education related employment, manpower and training activities. The 6% increase in overall growth in funds is expected to be less than the rate of inflation, signalling a small decline in support in real terms.

What Agencies Provide Support?

Awareness that a large number of Federal agencies provide support for education KPU has been relatively recent. The NSF series on Federal Funds for R&D has confined itself to a handful of agencies, chiefly the National Institute of Education, the Office of Education, the Office of Child Development, the National Institutes of Health, and the National Science Foundation. Although OMB has collected R&D activities of additional agencies since FY 1972 as part of its special analysis of education, its published reports present data which cannot be disaggregated to the necessary level.

Part of the problem concerns the level of detail at which the units of analysis are defined. When whole agencies or programs are used as the units of analysis, much detail and variability is often lost. As one moves down the scale to sub-agencies, programs, sub-programs, or projects, it is often possible to find education-related activity which would be lost at a higher level of aggregation. Conversely non-education-related activity can be identified and eliminated from programs primarily for education. Of course the most refined analyses can be made by classifying projects, but so far this can be done only on a limited basis.

5/ For further discussion of these agencies' programs, see Nelson, Sowers, Mason, 1977.

One of the virtues of the NAS data is that its classification scheme does move farther down the agency/program hierarchy than NSF and OMB data have done previously. Table 2 provides data on obligations in FY 1975, 1976 and 1977 for education KPU for departments or agencies and programs. In all, there are 10 departments and agencies (counting four HEW units separately) and 42 programs that provide support for education KPU.

Clearly the education Division of HEW is the dominant supporter of education KPU, with the Office of Education the largest sponsor. In FY 1975 the Education Division of HEW (OE, NIE, and the Office of the Assistant Secretary for Education) accounted for 75% of all education KPU funding, with the Office of Education accounting for 54%. Other large supporters of education KPU (obligations of at least $15 million) are the National Institute of Education (16%), National Science Foundation (9%), the Public Health Service and Department of Defense (5% each), the Office of the Assistant Secretary for Education and the National Endowment for the Humanities (4% each).

Table 2 also shows the funding pattern for three fiscal years. Since estimated data, particularly that representing budget requests, often change as they go through the stages of appropriation, allocation, and obligation, these yearly comparisons should not be interpreted as actual trends. But they do suggest the kinds of shifts that are proposed in the budget planning process.

At the department/agency level the most notable changes projected are the decline in funds for NSF, the increase for the Departments of State and Defense and the National Institute of Education, and the termination of activity by the Community Services Administration. The Education Division, HEW, is expected to remain the largest source of Federal support.

How Much Support Is Provided For Different KPU Functions?

The idea of a large number of Federal agencies providing support for education KPU raises questions concerning possible duplication of effort and the need for coordination. However, it is important to recognize that programs that are similar in one respect may differ considerably in other respects. The ability to investigate these questions is dependent on the ability to classify the activities (a) by KPU function, (b) performer, (c) target groups, and (d) a variety of substantive dimensions. The NAS study permits only classification by function.

Table 2. Federal obligations for education knowledge production and utilization, by department or agency and program, fiscal years 1975, 1976, 1977 (dollars in thousands).

Department or agency and program	FY 1975 Actual	FY 1976 Est.	FY 1977 Proj.
Total	452,225	472,229	480,272
1. Department of HEW	363,538	393,461	404,485
Education Division	339,995	374,203	381,589
Office of the Ass't. Secy.	20,623	22,784	24,157
Nat'l Center for Ed. Stat.	8,293	10,323	11,645
FIPSE (Higher Education)	11,368	11,499	11,500
Immediate Office	962	962	962
Office of Education	245,552	277,125	262,432
Bureau of Post-Secondary Ed.	3,804	4,567	2,190
Bureau of Occup. & Adult Ed.	43,086	38,514	33,590
Bureau of School Systems	63,968	58,756	58,450
Bureau of Ed. for Handicapped	33,722	54,326	49,015
Office of Indian Education	3,300	6,300	5,960
Office of the Commissioner	80,569	98,159	96,957
Office of Planning, Budget & Eval.	17,103	16,503	16,270
Nat'l Institute of Education	73,820	74,294	95,000
Finance & Productivity Group	19,543	15,203	15,460
Education and Work Group	15,478	13,690	10,460
Dissemination and Resources Group	6,933	10,698	17,126
Education Equity Group	8,465	11,042	16,230
Basic Skills Group	20,798	18,346	19,828
School Capacity for Prob. Solv.	2,603	4,011	7,655
Other	-	1,304	8,241
Public Health Service	21,496	21,557	21,046
Nat'l Institute of Health	4,765	5,391	5,144
Nat'l Library of Medicine	500	550	570
Nat'l Heart & Lung Inst.	4,265	4,841	4,574
Center for Disease Control	1,956	2,089	2,263
Bureau of Health Educ.	1,956	2,089	2,263
Health Resources Admin.	14,775	14,077	13,639
Bureau of Health Manpower	10,862	10,750	10,750
Nat'l Center for Heal. Serv. Res.	3,414	2,835	2,519
Office of Planning & Legislation	499	492	370
Office of Human Development	720	1,001	-
Administration on Aging	720	1,001	-

(Continued)

Table 2. Federal obligations for education knowledge production and utilization, by department or agency and program, fiscal years 1975, 1976, 1977 (dollars in thousands). (cont'd)

Department or agency and program	FY 1975 Actual	FY 1976 Est.	FY 1977 Proj.
Office of The Secretary	1,325	1,700	1,850
Ass't Secy, for Plan. & Eval.	1,325	1,700	1,850
2. Department of Agriculture	240	245	299
Food & Nutrition Services	200	200	250
Cooperative State Res. Serv.	40	45	49
3. Department of Defense	21,451	22,581	28,380
Department of the Army	5,070	5,668	7,438
Department of the Navy	8,721	8,338	10,810
Department of the Air Force	3,591	4,901	6,090
Advanced Research Project Agency	4,069	3,674	4,042
4. Department of the Interior	1,178	1,198	2,000
Nat'l Park Service	50	50	50
Office of Indian Education	1,128	1,118	1,420
Other	-	30	30
5. Department of State	1,447	4,843	7,225
Agency for Internat'l Development	1,447	4,843	7,225
6. Appalacian Regional Commission	1,300	2,000	1,800
7. Community Services Administration	2,500	5,000	-
8. National Foundation for Arts & Human	17,511	18,397	16,440
Endowment for the Arts	260	697	740
Endowment for the Humanities	17,251	17,700	15,700
9. National Science Foundation	39,875	16,712	16,400
10. Smithsonian Institution	3,187	3,365	3,243

SOURCE: National Academy of Sciences, Study Project on Social Research and Development, as modified by the National Institute of Education.

Regrouping KPU Sub-functions. NAS originally collected data on 24 sub-functions. Space does not permit a detailed discussion of the conceptual issues involved in their classification scheme, but a few outstanding features should be noted:

- o Four types of evaluation activities are identified; however, in our grouping of sub-functions, evaluation research is classified as research rather than evaluation. An example of evaluation research is the evaluation technologies program supported by NIE. "Evaluation activities" includes program evaluation, evaluation data and management evaluation.

- o Data on two types of statistical activities are included. While clearly not the same as research, the collection of social bookkeeping data is a form of knowledge production that makes an important contribution to KPU. Statistical research is categorized as research and not statistical activities. An example of a statistical research program is the National Assessment of Educational Progress (NAEP).

- o Four kinds of demonstrations were originally identified. This reflects the fact that the term has been used to indicate a wide variety of activities. Demonstrations have been differentiated in terms of their primary purpose (i.e., social experimentation, policy formulation, or policy implementation). As mentioned previously, in our analysis "miscellaneous demonstrations" have been included selectively when the program incorporated systematic evaluation of the innovation and/or focused on its "packaging" or transferability. Since there was very little activity identified as social experimentation in education, this category was combined with policy formulation demonstrations.

A Typology of KPU Functions. As a first step, the original 24 NAS sub-functions have been regrouped into eight functions and 21 sub-functions (see Figure 2). For certain purposes it is convenient to group these eight in turn. Other people have generally used a dichotomy: e.g. knowledge production and knowledge utilization (Clark and Guba, 1976) or knowledge production and knowledge application (NAS, forthcoming). There appears to be a lack of consensus on the classification of some functions. For example, development is usually categorized as a form of knowledge production, but NAS classifies it as knowledge application. Although we recognize the sense in which development represents the application of knowledge, such a usage appears to ignore the fact that development results in products which are in turn disseminated and utilized. This line of reasoning suggest a three-way classification scheme.

FIGURE 2. TRANSFORMING OF FUNCTIONAL CATEGORIES INTO KNOWLEDGE PRODUCTION AND UTILIZATION FRAMEWORK

(NIE Version)

I. KNOWLEDGE PRODUCTION

1. RESEARCH ACTIVITIES
   - NSF Social Science
   - NSF Psychology
   - Other NSF Research
   - Research not reported to NSF
   - Statistical Research Data
   - Research Classified as Development by NSF
   - Evaluation Research

2. STATISTICAL ACTIVITIES
   - General Purpose Statistics
   - Development of Statistical Programs

II. PROBLEM SOLUTION

3. EVALUATION ACTIVITIES
   - Program Evaluation
   - Management Evaluation
   - Evaluation Data

4. POLICY FORMULATION DEMONSTRATIONS
   - Policy Formulation Demonstrations
   - Social Experimentation

5. DEVELOPMENT OF MATERIALS

6. MISCELLANEOUS DEMONSTRATIONS

III. UTILIZATION

7. POLICY IMPLEMENTING DEMONSTRATIONS

8. DISSEMINATION ACTIVITIES
   - Publication and Distribution of Social Scientific and Technical Information
   - Documentation, Reference, and Information Services (Information Retrieval Systems)
   - Research Synthesis for Use of Practitioners
   - Technical Assistance to Disseminate Knowledge
   - Conferences to Disseminate Knowledge
   - Creation of Dissemination Networks
   - Miscellaneous Dissemination Activities

Knowledge production. Activities or information which are intended to increase our general knowledge and for which the problems or needs are identified intrinsically rather than with reference to real world problems:

- o Research 6/
- o Statistical activities

Problem solving. Activities which apply systematic methods or disciplined inquiry to the solution of problems which are identified extrinsically in the real world and for which the outcomes are intended to be transferable or applicable to a class of real situations:

- o Evaluation activities
- o Policy formulation demonstrations (including social experiments)
- o Development of materials
- o Miscellaneous demonstrations

Utilization. Activities designed to facilitate the transfer and use of knowledge, information, or the outcomes of mission-oriented activities:

- o Implementing demonstrations
- o Dissemination activities

Differential Support for KPU Functions. How are funds allocated to the different KPU functions? Data for each of the three fiscal years are shown in Table 3 (see Appendix 3 for detail of FY 1975 only). The majority of the funds are obligated for problem solving activities followed by utilization and knowledge production. Turning to the specific functions, most funds are obligated for policy formulation demonstrations, development of materials, and implementation demonstrations (each accounting for approximately one-fifth of the total). Miscellaneous demonstrations, research, and dissemination each account for approximately one-tenth of the total. Although evaluation accounts for only 5% of the total, this figure may be underestimated for two reasons:

6/ According to our perspective only basic research would be classified as knowledge production. However, the NAS data did not separate basic from applied research, and so both are included as knowledge production.

Table 3. Federal obligations for education knowledge production and utilization by function, Fiscal Years 1975, 1976, and 1977.

Function	Dollars (thousands)			Percent		
	FY 1975 actual	FY 1976 est.	FY 1977 proj.	FY 1975 actual	FY 1976 est.	FY 1977 proj.
Total	452,225	472,229	480,272	100%	100%	100%
KNOWLEDGE PRODUCTION	48,508	67,225	83,593	11	14	17
Research	45,541	63,026	79,318	10	13	16
Stat. Activities	2,967	4,199	4,275	1	1	1
PROBLEM SOLUTION	269,416	272,400	250,984	59	58	52
Evaluation	19,663	21,546	18,578	4	5	4
Policy Form. Demo.	96,462	88,643	80,815	21	19	17
Dev. of Materials	95,967	93,788	84,861	21	20	18
Misc. Demo.	57,324	68,423	66,730	13	14	14
UTILIZATION	134,301	132,604	145,695	30	28	30
Impl. Demo.	86,086	97,273	91,586	19	21	19
Dissemination	48,215	35,331	54,109	11	7	11

SOURCE: National Academy of Sciences, Study Project on Social Research and Development, as modified by the National Institute of Education.

- o Evaluation funds may be hidden in other programs in which a certain percentage of programs funds is set aside for evaluation.

- o Evaluation research is classified as research. (Combining evaluation and evaluation research yields a total of $21.1 million for evaluation in FY 1975).

It should be kept in mind that there are no standards for what would be the most appropriate mix. Some kinds of functions are inherently more expensive than others (e.g. demonstrations vs. theoretical research).7/

Remembering that differences in the three fiscal years do not represent actual trends but changes that have been projected as part of the planning and budgeting process, it appears that some increased emphasis on knowledge production, particularly research has been planned. Correspondingly, support for problem solving functions is expected to decline while utilization will remain about the same.

As mentioned previously, an advantage of the NAS data base is that data were coded by sub-function. Table 4 presents funds obligated for the various sub-functions under statistics, evaluation, and dissemination. 8/

"General purpose statistics" accounts for 87% of the statistics function. In the evaluation function, 70% of the obligations are for "program evaluations." A wide variety of sub-functions under dissemination are supported. The "creation of dissemination networks" (23%) and "conferences to disseminate knowledge" (21%) are the two sub-functions receiving the greatest support. Two other areas receiving substantial support are "technical assistance to disseminate knowledge" and "documentation, reference, and information services" (16% each).

Which Agencies Support Which Kinds of Education KPU Functions?

In comparing the education KPU activities of various agencies, two questions should be addressed. First which of the KPU functions do each of the agencies emphasize? Second, of the total amount of funds obligated for each type of function, which agencies account for what percentage of the total? Based on the detailed data in Appendix 3, the first question examines the distributions of funds by row while the second examines the

7/ For discussion of the problems of interpreting R&D budget data and the issue of "balance", see Shapley, 1976.

8/ The sub-functions under research are not presented because they are administrative categories rather than analytic.

Table 4. Federal obligations for selected education knowledge production and utilization functions, with detail of sub-functions, FY 1975.

Function and Sub-function	Dollars (thousands)
STATISTICAL ACTIVITIES	2,967
General Purpose Statistics	2,576
Development of Statistical Programs	391
EVALUATION ACTIVITIES	19,663
Program Evaluation	13,713
Management Evaluation	2,386
Evaluation Data	3,564
DISSEMINATION	48,215
Pub. Distribution of Social Scientific; and Technical Information	2,424
Documentation, Reference, and Information Services	7,670
Research Synthesis for Use of Practitioners	4,949
Technical Assistance to Disseminate Knowledge	7,921
Conferences to Disseminate Knowledge	10,080
Creation of Dissemination Networks	10,903
Miscellaneous Dissemination Activities	4,268

SOURCE: National Academy of Sciences, Study Project on Social Research and Development, as modified by the National Institute of Education.

Note: Two sub-functions, statistical research and evaluation research, are coded under the Research function. Evaluation research totaled $1,408 million; if added to Evaluation Activities the grand total for Evaluation would be $21,071 million.

distributions by column. Tables 5 and 6 are percentage tables based on Appendix 3 using a less detailed classification of agencies.

Table 5 shows the percentage of funds obligated by each agency for each function. Within their own budgets, the various agencies emphasize different functions. The Office of Education emphasizes policy implementation demonstrations, miscellaneous demonstrations, and policy formulation demonstrations. NIE obligates over half of its funds on policy formulation demonstrations and approximately one-fourth on the development of materials. The Office of the Assistant Secretary for Education emphasizes research, development of materials, and miscellaneous demonstrations. The three non-HEW agencies involved in education KPU (Department of Defense, National Science Foundation and National Endowment for the Humanities) obligate more than half of their funds to the development of materials. Based on these data, different agencies do in fact emphasize different KPU functions.

Turning to the source of funds obligated for each function, the Office of Education (because of its large total budget) accounts for a higher percentage of each function except development of materials (See Table 6). Significant amounts (at least 10% of the total) of educational research are sponsored by five different agencies, with OE and NIE each accounting for approximately one-fourth of the total. 9/ Almost all statistical activities are conducted by the Office of the Assistant Secretary for Education which contains the National Center for Educational Statistics. The Office of Education sponsors the vast majority of evaluation activities and along with NIE is the primary source of funds for policy formulation demonstrations. Significant work on the development of materials is conducted by five different agencies (NSF, OE, NIE, Department of Defense, and the National Endowment for the Humanities). Policy implementation demonstrations are sponsored primarily by OE. Dissemination is primarily conducted by OE, NSF and NIE.

SUMMARY AND CONCLUSIONS

Analysis of Federal funding for education KPU using data provided by the National Academy of Sciences Study of Social Research and Development indicates the following:

- Between fiscal years 1975 and 1977 funding for education KPU is expected to increase by 6%. As this figure is less than the rate of inflation, support in real terms will decrease.

- The majority of education KPU funds (60%) is spent on problem solving activities followed by utilization (29%) and knowledge production (11%).

9/ As noted on p. 9, the exclusion of research in several Institutes of NIH as "non-social" leads to an understatement of the support of research by the Public Health Service.

Table 5. Obligations for knowledge production and utilization in Federal departments and agencies by KPU function, fiscal year 1975.

Department or Agency	Dollars (Mill.)	Percent distribution										Utili
		Total	Knowledge Production			Problem Solving						
			Total	Research	Stat.	Total	Eval.	Policy Form. Demo.	Dev. Mat.	Misc. Demo	Total	Po
TOTAL	452.2	100.0	10.7	10.1	0.6	59.6	4.3	21.3	21.2	12.7	29.7	
Health, Education & Welfare	363.5	100.0	11.0	10.2	0.8	59.1	5.2	25.5	12.6	15.8	29.9	
Education Division	340.0	100.0	10.1	9.2	0.9	61.0	5.2	26.4	12.4	16.9	29.0	
Off. Ass't Secretary	20.6	100.0	50.5	36.4	14.1	46.2	-	1.7	22.8	21.8	3.3	
Office of Education	245.6	100.0	4.9	4.9	0.0	57.8	7.2	20.9	8.2	21.5	37.2	
Nat'l Inst. of Ed.	73.8	100.0	15.8	15.8	-	75.6	0.3	51.5	23.7	-	8.6	
Public Health Service	21.5	100.0	23.2	23.2	-	30.9	1.7	12.2	17.1	-	45.8	
Other HEW	2.0	100.0	31.2	31.2	-	48.1	32.5	15.6	-	-	20.6	
Department of Defense	21.5	100.0	27.2	27.2	-	72.7	-	13.0	59.8	-	-	
National Science Foundation	39.9	100.0	-	-	-	57.1	-	2.5	54.6	-	42.9	
Nat'l Endowment Human.	17.3	100.0	1.1	1.1	-	83.5	-	-	83.5	-	15.4	
Other	10.1	100.0	25.2	25.2	-	17.1	7.9	-	9.3	-	57.6	

Source: National Academy of Sciences, Study Project on Social Research and Development, as modified by the National Institute of Education. Percentages are based on data appearing in Appendix 3.

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knowledge production and utilization in Federal departments and agencies by KPU
5.

	Dollars (Mill.)	Percent distribution											
		Total	Knowledge Production			Problem Solving					Utilization		
			Total	Research	Stat.	Total	Eval.	Policy Form. Demo.	Dev. Mat.	Misc. Demo	Total	Policy Impl Demo.	Diss.
	452.2	100.0	10.7	10.1	0.6	59.6	4.3	21.3	21.2	12.7	29.7	19.0	10.7
re	363.5	100.0	11.0	10.2	0.8	59.1	5.2	25.5	12.6	15.8	29.9	21.4	8.5
	340.0	100.0	10.1	9.2	0.9	61.0	5.2	26.4	12.4	16.9	29.0	20.4	8.6
	20.6	100.0	50.5	36.4	14.1	46.2	-	1.7	22.8	21.8	3.3	-	3.3
	245.6	100.0	4.9	4.9	0.0	57.8	7.2	20.9	8.2	21.5	37.2	28.2	9.0
	73.8	100.0	15.8	15.8	-	75.6	0.3	51.5	23.7	-	8.6	-	8.6
	21.5	100.0	23.2	23.2	-	30.9	1.7	12.2	17.1	-	45.8	36.9	8.9
	2.0	100.0	31.2	31.2	-	48.1	32.5	15.6	-	-	20.6	19.5	1.1
	21.5	100.0	27.2	27.2	-	72.7	-	13.0	59.8	-	-	-	-
n	39.9	100.0	-	-	-	57.1	-	2.5	54.6	-	42.9	11.3	31.6
	17.3	100.0	1.1	1.1	-	83.5	-	-	83.5	-	15.4	-	15.4
	10.1	100.0	25.2	25.2	-	17.1	7.9	-	9.3	-	57.6	38.8	18.8

Sciences, Study Project on Social Research and Development, as modified by the
of Education. Percentages are based on data appearing in Appendix 3.

Table 6. Obligations for knowledge production and utilization functions by Federal departments and agenci
fiscal year 1975.

Department or Agency	Total	Knowledge Production			Problem Solving					Utilizati	
		Total	Re-search	Stat.	Total	Eval.	Policy Form. Demo.	Dev. Mat.	Misc. Demo.	Total	Polic Impl. Demo.
DOLLARS (Millions)	452.2	48.5	45.5	3.0	271.0	21.5	96.5	96.0	57.3	132.7	86.1
PERCENT											
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Health, Education & Welfare	80.4	82.3	81.1	100.0	79.8	96.0	96.1	48.0	100.0	80.9	90.2
Education Division	75.2	70.7	68.8	100.0	76.9	90.7	93.0	44.1	100.0	73.3	80.5
Off. Ass't Secretary	4.6	21.5	16.5	97.8	3.5	-	0.3	4.9	7.8	0.5	
Office of Education	54.3	25.1	26.6	2.1	52.7	89.5	53.3	21.0	92.2	68.1	80.5
Nat'l Inst. of Ed.	16.3	24.1	25.7	-	20.7	1.2	39.4	18.2	-	4.7	
Public Health Service	4.7	10.3	11.0	-	2.5	1.9	2.7	3.8	-	7.3	9.2
Other HEW	0.4	1.3	1.4	-	0.4	3.4	0.3	-	-	0.3	0.1
Department of Defense	4.7	12.0	12.8	-	5.8	-	2.9	13.4	-	-	
National Science Foundation	8.8	-	-	-	8.4	-	1.0	22.7	-	12.7	5.
Nat'l Endowment Human.	3.8	0.4	0.4	-	5.3	-	-	15.0	-	2.0	
Other	2.2	5.2	5.6	-	0.6	4.0	-	1.0	-	4.3	4.

Source: National Academy of Sciences, Study Project on Social Research and Development, as modified by th
National Institute of Education. Percentages are based on data appearing in Appendix 3.

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or knowledge production and utilization functions by Federal departments and agencies,

	Total	Knowledge Production			Problem Solving					Utilization		
		Total	Research	Stat.	Total	Eval.	Policy Form. Demo.	Dev. Mat.	Misc. Demo.	Total	Policy Impl. Demo.	Diss.
)	452.2	48.5	45.5	3.0	271.0	21.5	96.5	96.0	57.3	132.7	86.1	46.6
	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
fare	80.4	82.3	81.1	100.0	79.8	96.0	96.1	48.0	100.0	80.9	90.2	64.4
	75.2	70.7	68.8	100.0	76.9	90.7	93.0	44.1	100.0	73.3	80.5	60.4
ary	4.6	21.5	16.5	97.8	3.5	-	0.3	4.9	7.8	0.5	-	1.4
on	54.3	25.1	26.6	2.1	52.7	89.5	53.3	21.0	92.2	68.1	80.5	45.8
.	16.3	24.1	25.7	-	20.7	1.2	39.4	18.2	-	4.7	-	13.1
e	4.7	10.3	11.0	-	2.5	1.9	2.7	3.8	-	7.3	9.2	4.0
	0.4	1.3	1.4	-	0.4	3.4	0.3	-	-	0.3	0.5	0.0
	4.7	12.0	12.8	-	5.8	-	2.9	13.4	-	-	-	-
tion	8.8	-	-	-	8.4	-	1.0	22.7	-	12.7	5.2	26.1
	3.8	0.4	0.4	-	5.3	-	-	15.0	-	2.0	-	5.5
	2.2	5.2	5.6	-	0.6	4.0	-	1.0	-	4.3	4.6	3.9

y of Sciences, Study Project on Social Research and Development, as modified by the ute of Education. Percentages are based on data appearing in Appendix 3.

- o The three functions accounting for the majority of educational KPU funds are: policy formulation demonstrations, development of materials and implementation demonstrations.

- o Analysis of KPU function by agency indicates that agencies do in fact emphasize different KPU activities.

- o The Office of Education emphasizes policy implementation demonstrations, miscellaneous demonstrations, and policy formulation demonstrations.

- o NIE emphasizes policy formulation demonstrations and the development of materials.

- o Agencies outside of HEW primarily support development of materials projects.

Although this report provides funding figures for different KPU activities thoughout the Federal government, a number of questions remain unanswered:

- o How does the allocation of education funds to KPU functions compare to that in other social policy areas?

- o Do different agencies or programs differ by the types of problem areas, performing organization or target groups on which they focus?

NIE is presently conducting two studies to answer these questions. First is an analysis of the NAS data base comparing education with other social policy areas in the allocation of funds to the various KPU activities. Second is a project level analysis of a sub-set of data concerning Federal research and related activities on early childhood and adolescence using a variety of content variables, performer characteristics, and target groups in addition to KPU function to describe the projects supported by the various agencies.

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APPENDICES

Appendix 1.
Policy Areas Used in Data Collection by the National Academy of Sciences' Study Project on Social Research and Development.

1. Education

2. Energy Development and Conservation

3. Health

   Health Education
   Health Care Delivery and Services
   Prevention and Control of Health Problems
   Environmental Health
   Mental Health
   Substance Abuse Prevention and Rehabilitation
   Other

4. Housing

5. Law Enforcement and Justice

6. Natural Resources and Environment

7. Science and Technology Base

   Basic Research
   Science Education
   Telecommunications
   Other

8. Transportation

9. Employment, Manpower, and Training

10. Income Security

11. Social Services

12. International Affairs

13. Economic Growth and Productivity

14. Governance

15. Cultural Affairs

Appendix 2.
Functions and Sub-functions Used in Data Collection by the National Academy of Sciences' Study Project on Social Research and Development.

RESEARCH

- NSF Social Science
- NSF Psychology
- Other NSF Research
- Research Not Reported to NSF
- Statistical Research Data
- Research Classified as Development by NSF

DEMONSTRATIONS

- Social Experimentation
- Policy Formulation Demonstrations
- Policy Implementation Demonstrations
- Miscellaneous Demonstrations

DEVELOPMENT OF MATERIALS

DISSEMINATION ACTIVITIES

- Publication and Distribution of Social Scientific and Technical Information
- Documentation, Reference, and Information Services (Information Retrieval Systems)
- Research Synthesis for Use of Practitioners
- Technical Assistance to Disseminate Knowledge
- Conferences to Disseminate Knowledge
- Creation of Dissemination Networks
- Miscellaneous Dissemination Activities

ROUTINE FEDERAL STATISTICAL PROGRAMS

- General Purpose Statistics
- Program or Administrative Data
- Development of Statistical Programs

EVALUATION ACTIVITIES

- Program Evaluation
- Management Evaluation
- Evaluation Data
- Evaluation Research

TRAINING AND FELLOWSHIPS

Appendix 3.
Federal obligations for education knowledge production and utilization, by function and department, agency, and program, fiscal year 1975.
(Dollars in thousands).

Department or agency & program	Total	Knowledge Production			Problem Solving					Utilization		
		Total	Research Act.	Stat. Act.	Total	Eval. Act.	Form. Demo.	Dev. Mat.	Misc. Demo.	Total	Policy Impl. Demo.	Di
Total	452,225	48,508	45,541	2,967	269,416	19,663	96,462	95,967	57,324	134,301	86,086	
1. Department of HEW	363,536	39,921	36,954	2,967	214,905	18,869	92,690	46,022	57,324	108,710	77,660	
Education Division	339,995	34,289	31,322	2,967	207,266	17,839	89,750	42,353	57,324	98,440	69,328	
Ass't Secretary for Education	20,623	10,416	7,513	2,903	9,524	-	336	4,700	4,488	683	-	
NCES (Statistics)	8,293	8,293	5,390	2,903	-	-	-	-	-	-	-	
FIPSE (Post-Secondary)	11,368	1,161	1,161	-	9,524	-	336	4,700	4,488	683	-	
Immediate Office	962	962	962	-	-	-	-	-	-	-	-	
Office of Education	245,552	12,173	12,109	64	141,952	17,598	51,380	20,138	52,836	91,427	69,328	
Bureau Post-Secondary Ed.	3,804	816	816	-	2,639	-	628	2,011	-	349	-	
Bur. Occ./Adult Ed.	43,086	5,038	5,038	-	31,259	2,555	24,944	3,760	-	6,789	2,311	
Bur. of School Systems	63,968	40	40	-	9,431	-	8,760	671	-	54,497	46,441	
Bur. Ed. for Handicapped	33,722	4,946	4,946	-	19,306	200	15,348	3,758	-	9,470	8,337	
Office of Indian Education	3,300	-	-	-	2,700	-	1,700	1,000	-	600	-	
Off. of the Commissioner	80,569	-	-	-	62,083	309	-	8,938	52,836	18,486	12,239	
Off. Plan/Budget/Evaluation	17,103	1,333	1,269	64	14,534	14,534	-	-	-	1,236	-	
Nat'l Institute of Education	73,820	11,700	11,700	-	55,790	241	38,034	17,515	-	6,330	-	
Finance & Productivity	19,543	-	-	-	19,543	-	19,543	-	-	-	-	
Education & Work	15,478	373	132	-	15,256	241	13,869	1,146	-	90	-	
Diss. & Resources	6,933	693	693	-	-	-	-	-		6,240	-	
Educational Equity	8,465	5,693	5,693	-	2,772	-	-	2,772	-	-	-	
Basic Skills	20,798	4,642	4,642	-	16,156	-	3,877	12,279	-	-	-	
School Capacity Prob/Solve	2,603	540	540	-	2,063	-	745	1,318	-	-	-	
Public Health Service	21,496	4,993	4,993	-	6,655	366	2,620	3,669	-	9,848	7,932	
Nat'l Institutes of Health	4,765	-	-	-	3,210	-	1,568	1,642	-	1,555	-	
Nat'l Library Medicine	500	-	-	-	500	-	-	500	-	-	-	
NHLI (Heart & Lung)	4,265	-	-	-	2,710	-	1,568	1,142	-	-	-	

(Continued)

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owledge production and utilization, by function and department, agency, and program, fiscal year 1975.

	Knowledge Production			Problem Solving					Utilization		
Total	Total	Research Act.	Stat. Act.	Total	Eval. Act.	Form. Demo.	Dev. Mat.	Misc. Demo.	Total	Policy Impl. Demo.	Dissemination Activities
452,225	48,508	45,541	2,967	269,416	19,663	96,462	95,967	57,324	134,301	86,086	48,215
363,536	39,921	36,954	2,967	214,905	18,869	92,690	46,022	57,324	108,710	77,660	31,050
339,995	34,289	31,322	2,967	207,266	17,839	89,750	42,353	57,324	98,440	69,328	29,112
20,623	10,416	7,513	2,903	9,524	-	336	4,700	4,488	683	-	683
8,293	8,293	5,390	2,903	-	-	-	-	-	-	-	-
11,368	1,161	1,161	-	9,524	-	336	4,700	4,488	683	-	683
962	962	962	-	-	-	-	-	-	-	-	-
245,552	12,173	12,109	64	141,952	17,598	51,380	20,138	52,836	91,427	69,328	22,099
3,804	816	816	-	2,639	-	628	2,011	-	349	-	349
43,086	5,038	5,038	-	31,259	2,555	24,944	3,760	-	6,789	2,311	4,478
63,968	40	40	-	9,431	-	8,760	671	-	54,497	46,441	8,056
33,722	4,946	4,946	-	19,306	200	15,348	3,758	-	9,470	8,337	1,133
3,300	-	-	-	2,700	-	1,700	1,000	-	600	-	600
80,569	-	-	-	62,083	309	-	8,938	52,836	18,486	12,239	6,247
17,103	1,333	1,269	64	14,534	14,534	-	-	-	1,236	-	1,236
73,820	11,700	11,700	-	55,790	241	38,034	17,515	-	6,330	-	6,330
19,543	-	-	-	19,543	-	19,543	-	-	-	-	-
15,478	373	132	-	15,256	241	13,869	1,146	-	90	-	90
6,933	693	693	-	-	-	-	-		6,240	-	6,240
8,465	5,693	5,693	-	2,772	-	-	2,772	-	-	-	-
20,798	4,642	4,642	-	16,156	-	3,877	12,279	-	-	-	-
2,603	540	540	-	2,063	-	745	1,318	-	-	-	-
21,496	4,993	4,993	-	6,655	366	2,620	3,669	-	9,848	7,932	1,916
4,765	-	-	-	3,210	-	1,568	1,642	-	1,555	-	1,555
500	-	-	-	500	-	-	500	-	-	-	-
4,265	-	-	-	2,710	-	1,568	1,142	-	-	-	-

Department or agency & program	Total	Knowledge Production			Problem Solving					Utilization	
		Total	Research Act.	Stat. Act.	Total	Eval. Act.	Form. Demo.	Dev. Mat.	Misc. Demo.	Total	Policy Impl. Demo.
Center for Disease Control	1,956	108	108	-	1,635	-	832	803	-	213	-
Bur. of Health Education	1,956	108	108	-	1,635	-	832	803	-	213	-
Health Resources Adm.	14,775	4,885	4,885	-	1,810	366	220	1,224	-	8,080	7,932
Bur. Health Manpower	10,862	1,544	1,544	-	1,240	-	209	1,031	-	8,078	7,932
Health Services Research	3,414	3,208	3,208	-	204	-	11	193	-	2	-
Off. Planning & Legis.	499	133	133	-	366	366	-	-	-	-	-
Office Human Development	720	-	-	-	320	-	320	-	-	400	400
Administration on Aging	720	-	-	-	320	-	320	-	-	400	400
Office of the Secretary	1,325	639	639	-	664	664	-	-	-	22	-
Ass't. Secy. Plan. & Eval.	1,325	639	639	-	664	664	-	-	-	22	-
2. Department of Agriculture	240	40	40	-	200	-	-	200	-	-	-
Food & Nutrition Service	200	-	-	-	200	-	-	200	-	-	-
Coop. State Research Serv.	40	40	40	-	-	-	-	-	-	-	-
3. Department of Defense	21,451	5,847	5,847	-	15,604	-	2,780	12,824	-	-	-
Army	5,070	2,994	2,994	-	2,076	-	-	2,076	-	-	-
Navy	8,721	989	989	-	7,732	-	-	7,732	-	-	-
Air Force	3,591	575	575	-	3,016	-	-	3,016	-	-	-
Advanced Res. Proj. Agency	4,069	1,289	1,289	-	2,780	-	2,780	-	-	-	-
4. Department of the Interior	1,178	-	-	-	1,058	400	-	658	-	120	120
National Park Service	50	-	-	-	50	-	-	50	-	-	-
Office of Indian Education	1,128	-	-	-	1,008	400	-	608	-	120	120
5. Department of State	1,447	610	610	-	-	-	-	-	-	837	-
AID	1,447	610	610	-	-	-	-	-	-	837	-
6. Appalachian Regional Com.	1,300	-	-	-	-	-	-	-	-	1,300	1,300

(Continued)

nowledge production and utilization, by function and department, agency, and program, fiscal year 1975,

	Knowledge Production			Problem Solving					Utilization		
	Total	Research Act.	Stat. Act.	Total	Eval. Act.	Form. Demo.	Dev. Mat.	Misc. Demo.	Total	Policy Impl. Demo.	Dissemination Activities
56	108	108	-	1,635	-	832	803	-	213	-	213
56	108	108	-	1,635	-	832	803	-	213	-	213
75	4,885	4,885	-	1,810	366	220	1,224	-	8,080	7,932	148
62	1,544	1,544	-	1,240	-	209	1,031	-	8,078	7,932	146
14	3,208	3,208	-	204	-	11	193	-	2	-	2
99	133	133	-	366	366	-	-	-	-	-	-
20	-	-	-	320	-	320	-	-	400	400	-
20	-	-	-	320	-	320	-	-	400	400	-
25	639	639	-	664	664	-	-	-	22	-	22
25	639	639	-	664	664	-	-	-	22	-	22
40	40	40	-	200	-	-	200	-	-	-	-
00	-	-	-	200	-	-	200	-	-	-	-
40	40	40	-	-	-	-	-	-	-	-	-
51	5,847	5,847	-	15,604	-	2,780	12,824	-	-	-	-
70	2,994	2,994	-	2,076	-	-	2,076	-	-	-	-
21	989	989	-	7,732	-	-	7,732	-	-	-	-
91	575	575	-	3,016	-	-	3,016	-	-	-	-
59	1,289	1,289	-	2,780	-	2,780	-	-	-	-	-
78	-	-	-	1,058	400	-	658	-	120	120	-
50	-	-	-	50	-	-	50	-	-	-	-
28	-	-	-	1,008	400	-	608	-	120	120	-
37	610	610	-	-	-	-	-	-	837	-	837
37	610	610	-	-	-	-	-	-	837	-	837
00	-	-	-	-	-	-	-	-	1,300	1,300	-

Appendix 3.

Federal obligations for education knowledge production and utilization, by function and department, agency, and program, fiscal year 197
in thousands). (cont'd).

Department or agency & program	Total	Knowledge Production			Problem Solving					Utilization	
		Total	Research Act.	Stat. Act.	Total	Eval. Act.	Form. Demo.	Dev. Mat.	Misc. Demo.	Total	Policy Impl. Demo.
7. Community Services Adm. .	2,500	-	-	-	-	-	-	-	-	2,500	2,500
8. Nat'l Foundation Arts & Human.	17,511	190	190	-	14,672	260	-	14,412	-	2,649	-
Endowment for the Arts	260	-	-	-	260	260	-	-	-	-	-
Endowment for the Human.	17,251	190	190	-	14,412	-	-	14,412	-	2,649	-
9. National Science Foundation	39,875	-	-	-	22,761	-	992	21,769	-	17,114	4,506
10. Smithsonian Institution	3,187	1,900	1,900	-	216	134	-	82	-	1,071	-

SOURCE: National Academy of Sciences, Study Project on Social Research and Development, as modified by the National I
of Education.

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dge production and utilization, by function and department, agency, and program, fiscal year 1975. (Dollars

	Knowledge Production			Problem Solving					Utilization		
	Total	Research Act.	Stat. Act.	Total	Eval. Act.	Form. Demo.	Dev. Mat.	Misc. Demo.	Total	Policy Impl. Demo.	Dissemination Activities
0	-	-	-	-	-	-	-	-	2,500	2,500	-
1	190	190	-	14,672	260	-	14,412	-	2,649	-	2,649
0	-	-	-	260	260	-	-	-	-	-	-
1	190	190	-	14,412	-	-	14,412	-	2,649	-	2,649
5	-	-	-	22,761	-	992	21,769	-	17,114	4,506	12,608
7	1,900	1,900	-	216	134	-	82	-	1,071	-	1,071

nces, Study Project on Social Research and Development, as modified by the National Institute